The Golden Bandicoot, *Isoodon auratus* Ramsay 1887, in western New South Wales during European times

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In September 1988, while investigating the occurrence of the nests of sticknest rats (*Leporillus* sp.) in the eastern escarpment of the Gap Range at Mootwingee National Park (31°3′S 142°36′E), a small deposit of owl pellets was found. The pellets were on the floor of a small cave (approximately one metre cubed) and had been partly compacted into the floor debris by goats *Capris hircus*. The more intact pellets had a black coating, indicating that they were deposited by a species of masked owl, *Tyto* sp. (Smith and Cole 1989). A number of loose bones, mainly skulls and dentaries, were also located in the floor debris of the cave. One partially intact pellet contained the skull of a polyprotodont marsupial. Upon extraction it was determined to be a virtually complete juvenile *Isoodon* skull. Based on the relative size of the bullae to skull length (345 mm^3 to approximately 46.5 mm), the angle and width of the ramus, and the long, fine angular process, the skull most closely agrees with the Golden Bandicoot *I. auratus* as reviewed by Lyne and Mort (1981). The specimen has been lodged with the Australian Museum. Other bandicoot dentaries found in the debris have been tentatively assigned to the Western Barred Bandicoot, *Perameles bougainville* Quoy and Gaimard 1824.

The Golden Bandicoot has been recorded from owl pellets in the Flinders Ranges, South Australia, regarded as being of 18th to 19th century origin (Smith 1977). Assuming that the material from Mootwingee is of the same age because of its similar state of preservation, this is the first definitive record of the Golden Bandicoot in New South Wales in historical times. The documented decline of the species shows that it rapidly became extinct across much of its range. It was last recorded in the northwest of South Australia in 1933 (Copley *et al.* 1989), the Top End of the Northern Territory in 1912 (McKenzie 1983), and in the centre of the Northern Territory in 1952 (Burbidge *et al.* 1988). In light of this rapid decline it is not unreasonable that the species occurred in western New South Wales at the time of European penetration of the region (1830–1860), but rapidly became extinct.

Figure 1 shows the distribution of the Golden Bandicoot and Southern Brown Bandicoot *I. obesulus* from a number of sources. Both owl pellet sites are closer to known localities for *I. obesulus* than for *I. auratus*. Krefft (1866) found what he called *I. obesulus* to be common at the junction of the Murray and Darling rivers, but it soon became extinct. Unfortunately, no specimens from this area were used by Lyne and Mort (1981) in their review of skull morphology in *Isoodon*. Confusion over the identity of the *Isoodon* from the Murray Darling junction has continued until the present, with the animals being assigned to *I. obesulus*, *I. auratus* or just *Isoodon* sp. in Seebeck *et al.* (1990).

The terrain between the Mootwingee site and the junction of the Murray and Darling Rivers is similar to the areas where *I. auratus* has been collected, rather than to

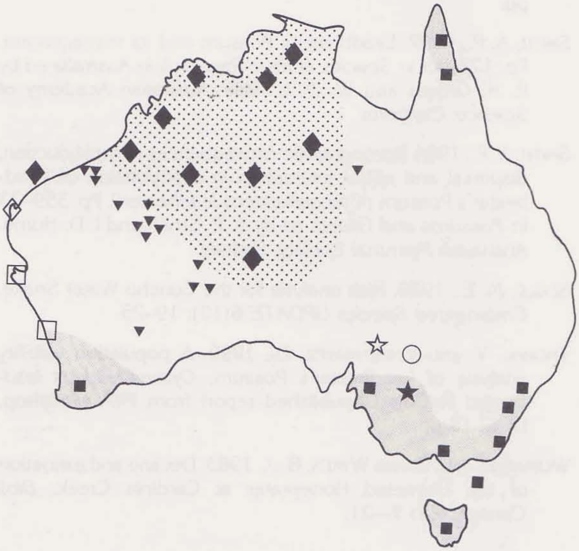

Figure 1. A map of Australia showing the distribution of the Golden and Southern Brown Bandicoots. Light stippling shows the Southern Brown Bandicoot distribution and coarse stippling shows the Golden Bandicoot distribution according to Strahan (1983). Other records for the Southern Brown Bandicoot are shown as solid squares (Lyne and Mort 1981) and open squares (Morton and Baynes 1985). Other records for the Golden Bandicoot are shown as solid diamonds (Lyne and Mort 1981), open diamonds (Morton and Baynes 1985) and solid triangles (Burbidge *et al.* 1988). Krefft's (1866) record is shown as a solid star. The subfossil record for the Flinders Ranges is shown as an open star, and for this study as an open circle.

areas where *I. obesulus* has been caught recently. This supports the ideas that the animals collected by Krefft (1866) from the Murray-Darling junction were *I. auratus*, a species not described when Krefft made his identification and that *I. obesulus* is restricted to the margins of the continent. This does not eliminate the possibility that the current two species are varieties of a single species showing a geographical cline along the climatic gradients of their range. In support of this is the fact that Wood Jones (1923) recognized only one species of *Isoodon* that occurred across all of South Australia, and that Troughton (1967) regarded *I. obesulus* as occurring in "Australia generally, except the far north and centre, and Tasmania, its one time prevalence over so wide a range causing it to be known as the Common Short-nosed Bandicoot".

Records from the Sturt expedition to central Australia shed little light on the distribution of bandicoots in far western New South Wales. Pig-footed Bandicoots *Chaeropus ecaudatus* Ogilby 1838 and Bilbies *Macrotis lagotis* Reid 1837 are mentioned specifically, but other bandicoots are only mentioned without sufficient detail to determine the species (Sturt 1847; Brock 1975) (see Fig. 2). It is clear from the statements of Krefft (1866), Wood Jones (1924) and Copley *et al.* (1989) that at least one species of *Isoodon* was abundant on the perimeter of western New South Wales in the 1800s. The specimen from Mootwingee indicates that the genus extended into western New South Wales at about that time. The Golden Bandicoot was known to overlap in range with the Bilby to a large extent in central and northern Australia, indicating that it could survive across most of the bioclimatic range of the latter species. This would indicate that it could have occupied much of the western plains of New South Wales as did the Bilby, but that its existence was ignored because of its similarity to the coastal species.

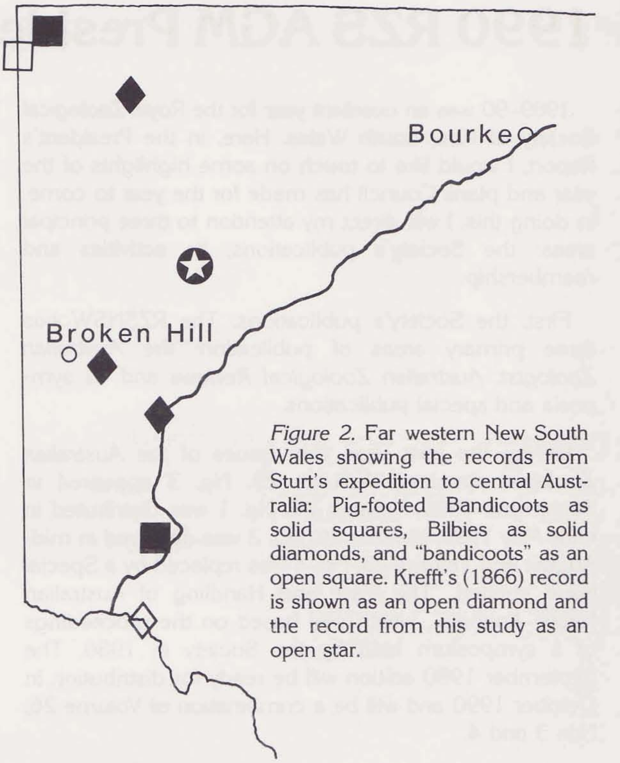

Figure 2. Far western New South Wales showing the records from Sturt's expedition to central Australia: Pig-footed Bandicoots as solid squares, Bilbies as solid diamonds, and "bandicoots" as an open square. Krefft's (1866) record is shown as an open diamond and the record from this study as an open star.

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